

IN THE CLAIMS:

1. (Original) A breathing circuit limb including:
an inlet,
an outlet, and
an enclosing wall defining a substantially singular exhalation flow passage between said inlet and said outlet, at least a region of said enclosing wall being of a material that allows the passage of water vapour without allowing the passage of liquid water or respiratory gases, and
a water vapour flow path from said exhalation flow passage to ambient air through said material.
2. (Original) A breathing circuit limb as claimed in claim 1 wherein said material is selected from:
 - (a) hydrophilic thermoplastics,
 - (b) perfluorinated polymers
 - (c) woven treated fabrics.
3. (Original) A breathing circuit limb as claimed in claim 1 wherein said material is a perfluorinated polymer membrane.
4. (Original) A breathing circuit limb as claimed in claim 1 wherein said material is a hydrophilic polyester block copolymer.

5. (Original) A breathing circuit limb as claimed in claim 1 wherein said flow passage is a conduit and said region or regions is or are distributed over the length of said conduit.
6. (Original) A breathing circuit limb as claimed in claim 5 wherein said region or regions are elongate and run at least a substantial part of the length of said conduit.
7. (Original) A breathing circuit limb as claimed in claim 5 including a series of said regions spaced along the length of said conduit.
8. (Original) A breathing circuit limb as claimed in claim 5 wherein said conduit including said regions is extruded.
9. (Original) A breathing circuit limb as claimed in claim 8 wherein the entire of said extruded conduit is of a material that allows the passage of water vapour without allowing the passage of liquid water or respiratory gases.
10. (Original) A breathing circuit limb as claimed in claim 8 wherein said regions of a material that allows the passage of water vapour without allowing the passage of liquid water or respiratory gases are one or more longitudinal strips running the complete length of said conduit.
11. (Original) A breathing circuit limb as claimed in claim 5 wherein said conduit includes at least one helically wound polymer tape or strip, part or all of said strip being of a material that allows the passage of water vapour without allowing the passage of liquid water or

respiratory gases, respective edges of adjacent turns of said strip being adjoining or overlapping and bonded.

12. (Original) A breathing circuit limb as claimed in claim 5 wherein said conduit includes at least one longitudinal strip, part or all of said strip being of a material that allows the passage of water vapour without allowing the passage of liquid water or respiratory gases, said strip or strips extending parallel to the axis of said conduit, edges of said strip or strips adjoining or overlapping to form an enclosed tube and bonded.

13. (Original) A breathing circuit limb as claimed in claim 5 wherein said conduit is a blown film tube of a material that allows the passage of water vapour without allowing the passage of liquid water or respiratory gases.

14. (Original) A breathing circuit limb as claimed in any one of claims 10 to 13 including lateral reinforcement against crushing.

15. (Original) A breathing circuit limb as claimed in claim 14 wherein said lateral reinforcement includes a plurality of annular corrugations distributed over the length of said conduit.

16. (Original) A breathing circuit limb as claimed in claim 14 wherein said lateral reinforcement is a helical bead or a series of annular ring beads or ribs distributed over the length of said conduit.

17. (Original) A breathing circuit limb as claimed in claim 11 including lateral reinforcement against crushing wherein said lateral reinforcement is a helical bead disposed over said adjoining or overlapping edges between turns of strip.

18. (Original) A breathing circuit limb as claimed in claim 14 wherein said lateral reinforcement is a skeletal reinforcing structure within said conduit.

19. (Original) Apparatus for forming a breathing circuit conduit comprising:

a former, onto which a tube wall can be deposited and which advances said deposited tube wall in an advance axis and rotates said deposited tube wall about said advance direction, the speed of said advance and the speed of said rotation together defining a pitch,

at least one film laying head which deposits a film on said former, the combined width of said film deposited by said film laying heads being wider than said pitch such that adjacent turns of laid film overlap to form an overlap seam,

a bead laying head for each said film laying head, each said bead laying head laying a reinforcing bead on an overlap seam,

an axial thread laying head, said thread laying head fitted over and around said former and carrying a plurality of thread feeds, each thread feed allowing the drawing of a thread from a reserve, and

a rotator to rotate said axial thread laying head at substantially the same speed as the expected rotation speed of said tube.

20. (Original) Apparatus as claimed in claim 19 wherein, in said advance direction, said bead laying head precedes said thread laying head.

21. (Original) Apparatus as claimed in claim 19 wherein, in said advance direction, said bead laying head succeeds said thread laying head.

22. (Original) Apparatus as claimed in claim 21 including at least one, but less than the number of said bead laying heads, reinforcement laying head, between said thread laying head and said bead laying head in said advance direction, said reinforcement laying head depositing a mesh tape onto said former, the combined width of said mesh tapes deposited by said mesh laying heads being greater than said pitch.

23. (New) A catheter mount including:

a short length of breathing conduit for connecting at one end to a patient interface component and the other end to, directly or indirectly, the dual arms of a breathing circuit,

a dividing partition extending for at least a substantial part of the length of said breathing conduit and dividing, in cross section, said conduit into a plurality of gases passageways each having a defining passageway wall,

a least one of :

an inspiratory flow director for directing at least the bulk of an inspiratory air flow to a first selection of said passageways, and

an expiratory flow director for directing at least the bulk of an expiratory flow to a second selection of said passageways, said second selection being exclusive of said first selection,

and at least a region of the walls of said second selection of passageways being of a material that allows the passage of water vapour without allowing the passage of liquid water or respiratory gases.

24. (New) A catheter mount as claimed in claim 23 wherein said material is selected from:

- (a) hydrophilic thermoplastics,
- (b) perfluorinated polymers
- (c) woven treated fabrics.

25. (New) A catheter mount as claimed in claim 23 wherein said partition comprises an inner conduit coaxial with said breathing conduit, freely suspended to be substantially coaxial with said breathing conduit.

26. (New) A catheter mount as claimed in either claim 23 wherein said first selection of passages at least substantially surrounds said second selection of passages, and said breathing conduit is insulated from ambient conditions on its outer surface.

27. (New) A catheter mount as claimed in either claim 23 wherein second selection of passages at least substantially surrounds said first selection of passages, and said breathing conduit includes at least a region of said wall being of a material that allows the passage of

water vapour without allowing the passage of liquid water or respiratory gases.

28. (New) A catheter mount as claimed in claim 23 wherein said inspiratory flow director and/or said expiratory flow director comprises flow influencing barriers or baffles at either end of said breathing tube.

29. (New) A catheter mount as claimed in claim 23 wherein at least one of said flow directors is a valve operated by the prevailing gasses pressures.

30. (New) A catheter mount as claimed in claim 23 wherein said conduit includes said regions and is extruded.

31. (New) A catheter mount as claimed in claim 30 wherein the entire of said extruded tube is of a material that allows the passage of water vapour without allowing the passage of liquid water or respiratory gases.

32. (New) A catheter mount as claimed in claim 30 wherein said regions of a material that allows the passage of water vapour without allowing the passage of liquid water or respiratory gases are one or more longitudinal strips running the complete length of said conduit.

33. (New) A catheter mount as claimed in claim 23 wherein said conduit includes at least one helically wound polymer tape or strip, part or all of said strip being of a material that allows the passage of water vapour without allowing the passage of liquid water or respiratory gases, respective edges of adjacent turns of said strip being adjoining or overlapping and bonded.

34. (New) A catheter mount as claimed in claim 23 wherein said conduit includes at least one longitudinal strip, part or all of said strip being of a material that allows the passage of water vapour without allowing the passage of liquid water or respiratory gases, said strip or strips extending parallel to the axis of said conduit, edges of said strip or strips adjoining or overlapping to form an enclosed tube and bonded.

35. (New) A catheter mount as claimed in claim 23 wherein said conduit is a blown film tube of a material that allows the passage of water vapour without allowing the passage of liquid water or respiratory gases.

36. (New) A catheter mount as claimed in claims 32 to 35 including lateral reinforcement against crushing.

37. (New) A catheter mount as claimed in claim 36 wherein said lateral reinforcement includes a plurality of annular corrugations distributed over the length of said conduit.

38. (New) A catheter mount as claimed in claim 36 wherein said lateral reinforcement is a helical bead or a series of annular ring beads or ribs distributed over the length of said conduit.

39. (New) A catheter mount as claimed in claim 33 including lateral reinforcement against crushing wherein said lateral reinforcement is a helical bead disposed over said adjoining or overlapping edges between turns of strip.

40. (New) A catheter mount as claimed in claim 36 wherein said lateral reinforcement is a skeletal reinforcing structure within said conduit.

41. (New) A catheter mount as claimed in any one of claims 33 to 35 wherein said conduit includes longitudinal reinforcement against longitudinal stretching of said conduit.

42. (New) A catheter mount as claimed in claim 39 wherein said conduit includes longitudinal reinforcement against longitudinal stretching of said conduit.

43. (New) A catheter mount as claimed in claim 41 wherein said longitudinal reinforcement includes a plurality of longitudinally extending threads spaces around the perimeter of the conduit wall, each said thread aligned substantially parallel with overall axis of said tube.

44. (New) A catheter mount as claimed in claim 42 wherein said longitudinal reinforcement includes a plurality of longitudinally extending threads spaced around the perimeter of the conduit wall, each said thread aligned substantially parallel with the overall axis of said tube and said threads are supported away from said conduit wall by said helical bead.

45. (New) A catheter mount as claimed in claim 44 wherein said thread is bonded to said bead at crossings of said bead, and spans the gaps between adjacent turns of said bead.

46. (New) A catheter mount as claimed in claim 44 wherein said longitudinal reinforcement includes an outer sheath disposed about said conduit and supported on said bead.

47. (New) A catheter mount as claimed in claim 46 wherein said outer sheath includes at least regions which are of a material that allows the passage of water vapour without allowing the passage of liquid water or respirator gases.

48. (New) A catheter mount as claimed in claim 46 wherein said outer sheath has a plurality of holes or apertures therethrough.

49. (New) A catheter mount as claimed in claim 42 wherein said longitudinal reinforcement includes an outer sheath disposed about said conduit and bonded with said

conduit wall.

50. (New) A catheter mount as claimed in claim 49 wherein said outer sheath is bonded to said conduit wall by action of a helical bead.

51. (New) A catheter mount as claimed in claim 50 wherein said outer sheath includes a plurality of longitudinally extending polymer threads, either parallel with the axis of said conduit or braided about said conduit.

52. (New) A catheter mount as claimed in claim 38 including a further wall of a material that allows the passage of water vapour without allowing the passage of liquid water or respiratory gases is spaced from said first wall by at least said helical bead.

53. (New) A catheter mount as claimed in claim 42 wherein where said longitudinal reinforcement is supported on said bead from said first wall, a second bead is disposed over said first bead, and said longitudinal reinforcement is held between said first and second beads.

54. (New) A catheter mount as claimed in claim 53 including a further said wall of a material that allows the passage of water vapour without allowing the passage of liquid water of respiratory gases disposed on the outer surface of said second bead.

55. (New) A catheter mount as claimed in claim 53 including a further said conduit wall of a material that allows the passage of water vapour without allowing the passage of liquid or respiratory gases adjacent said longitudinal reinforcement and between said first and second beads.

56. (New) Apparatus for forming a breathing circuit conduit comprising:

a former, onto which a tube wall can be deposited and which advances said deposited tube wall in an advance axis and rotates said deposited tube wall about said advance direction, the speed of said advance and the speed of said rotation together defining a pitch,

at least one film laying head which deposits a film on said former, the combined width of said film deposited by said film laying heads being wider than said pitch such that adjacent turns of laid film overlap to form an overlap seam,

a bead laying head for each said film laying head, each said bead laying head laying a reinforcing bead on an overlap seam,

an axial thread laying head, said thread laying head fitted over and around said former and carrying a plurality of thread feeds, each thread feed allowing the drawing of a thread from a reserve, and

a rotator to rotate said axial thread laying head at substantially the same speed as the expected rotation speed of said tube.

57. (New) Apparatus as claimed in claim 56 wherein, in said advance direction, said bead laying head precedes said thread laying head.

58. (New) Apparatus as claimed in claim 56 wherein, in said advance direction, said bead laying head succeeds said thread laying head.

59. (New) Apparatus as claimed in claim 58 including at least one, but less than the number of said bead laying heads, reinforcement laying head, between said thread laying head and said bead laying head in said advance direction, said reinforcement laying head depositing a mesh tape onto said former, the combined width of said mesh tapes deposited by said mesh laying heads being greater than said pitch.